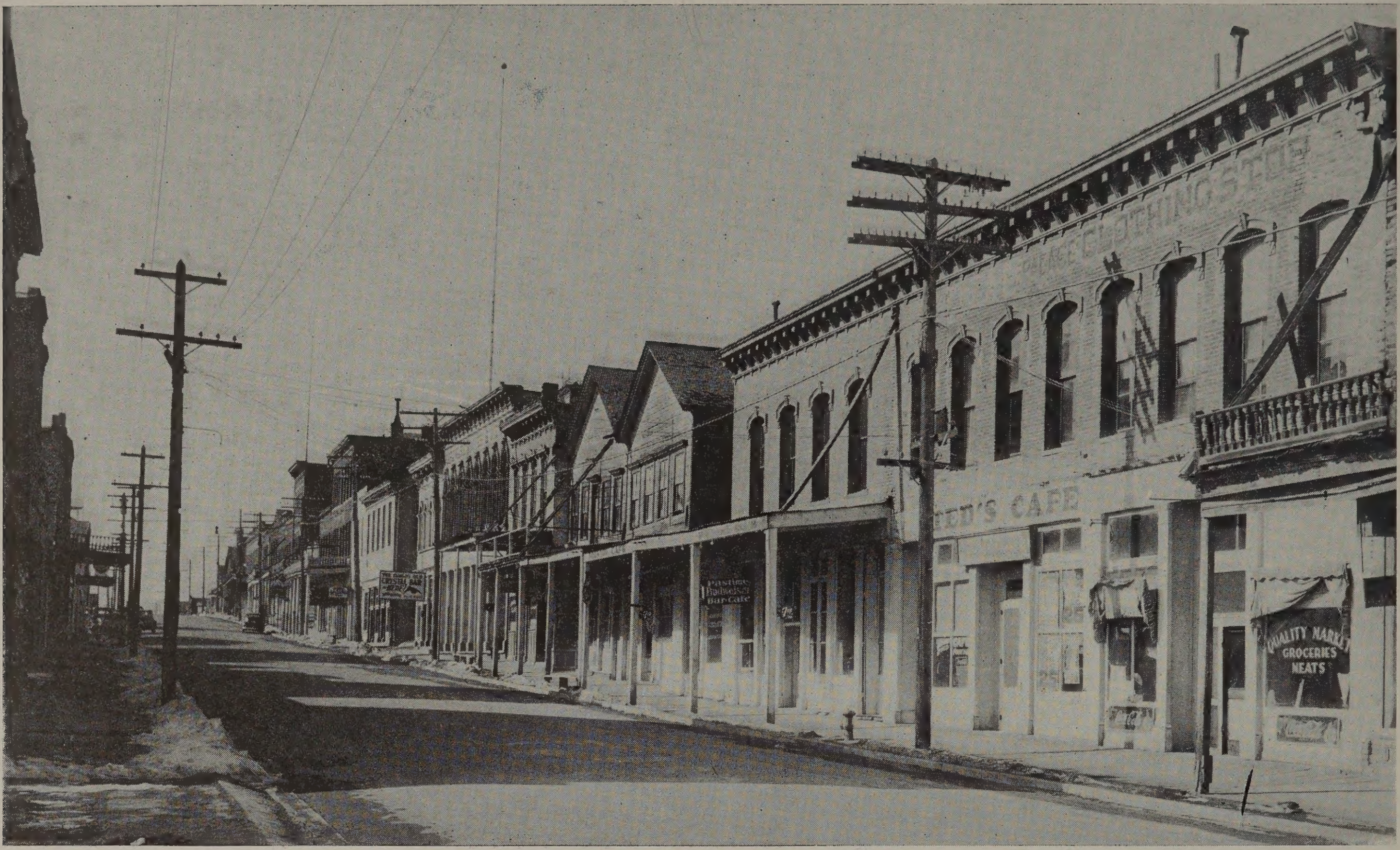
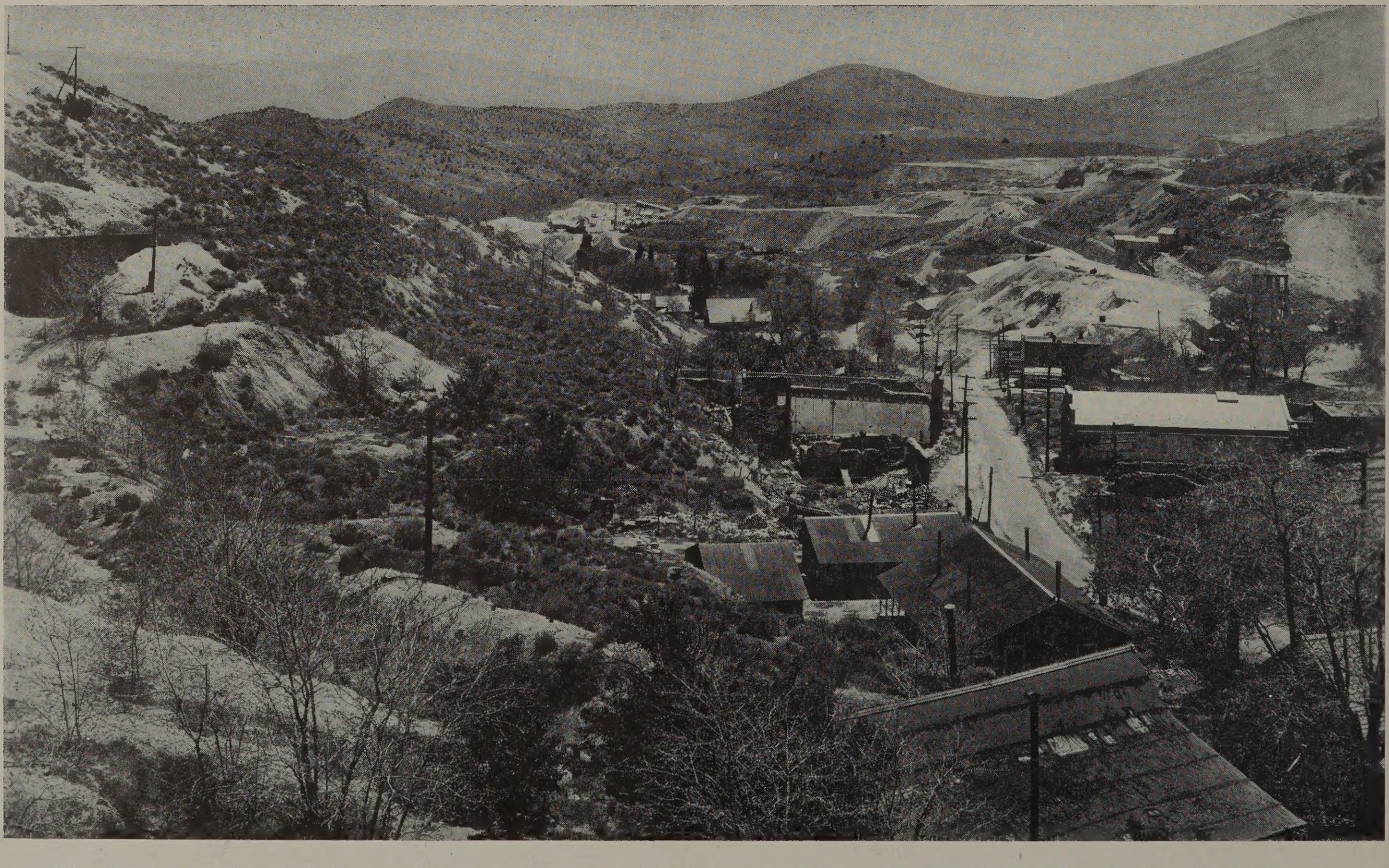
Nevada

HIGHWAYS and PARKS

JULY—1948—AUGUST



Old buildings, wooden awnings, and plank sidewalks on the west side of C Street, Virginia City, Nevada, are reminders of the boom mining days.



View looking south down Gold Canyon, along the famous Comstock Lode, from a point near the Divide, Virginia City, showing the old highway.

NEVADA
HIGHWAYS *and* PARKS

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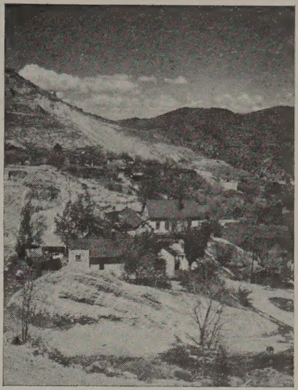
THE FRONT COVER

The old mining camp of Virginia City, Nevada, along the famous Comstock Lode had many facets from which it reflected all phases of raw western life in the last half of the nineteenth century. It was a hillside camp carrying all the implications of that cognomen. In our cover picture we show the north end of the town as it appears in our time, with Cedar Hill in the background. The town's slogan boasts that Virginia City is "the liveliest ghost town in the world."



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Virginia City, Nevada, Was a Great Old Mining Camp

VIRGINIA CITY, on the Comstock Lode in western central Nevada, has occupied a prominent place in history's hall of fame, as it has in the hearts of Nevada citizens, ever since the first silver and gold ore was discovered in that region back in the early, but most exciting, days of settlement of our western country.

At one time Virginia City was the largest community in the State and its influence was Nation-wide. Virginia City was the first silver-gold camp in western America where lode, or hard rock, mining was carried on successfully as distinguished from placer mining, or gravel washing, operations. Its fabulous production of silver and gold from the ore deposits, during its intensely active years, was so spectacular it left an indelible impress on the minds of all those who had ever heard of the place.

Great activity followed quickly after Peter O'Riley's pick had struck a bit of dark quartz rock and broke it off from the ledge about half way down the eastern flank of Sun Peak, in Ophir Canyon. The land was then known as western Utah and the year was 1859. Patrick McLaughlin was there with O'Riley and as the two prospectors closely examined the broken piece of quartz neither one could realize what their discovery was to bring. It didn't take them long to find out.

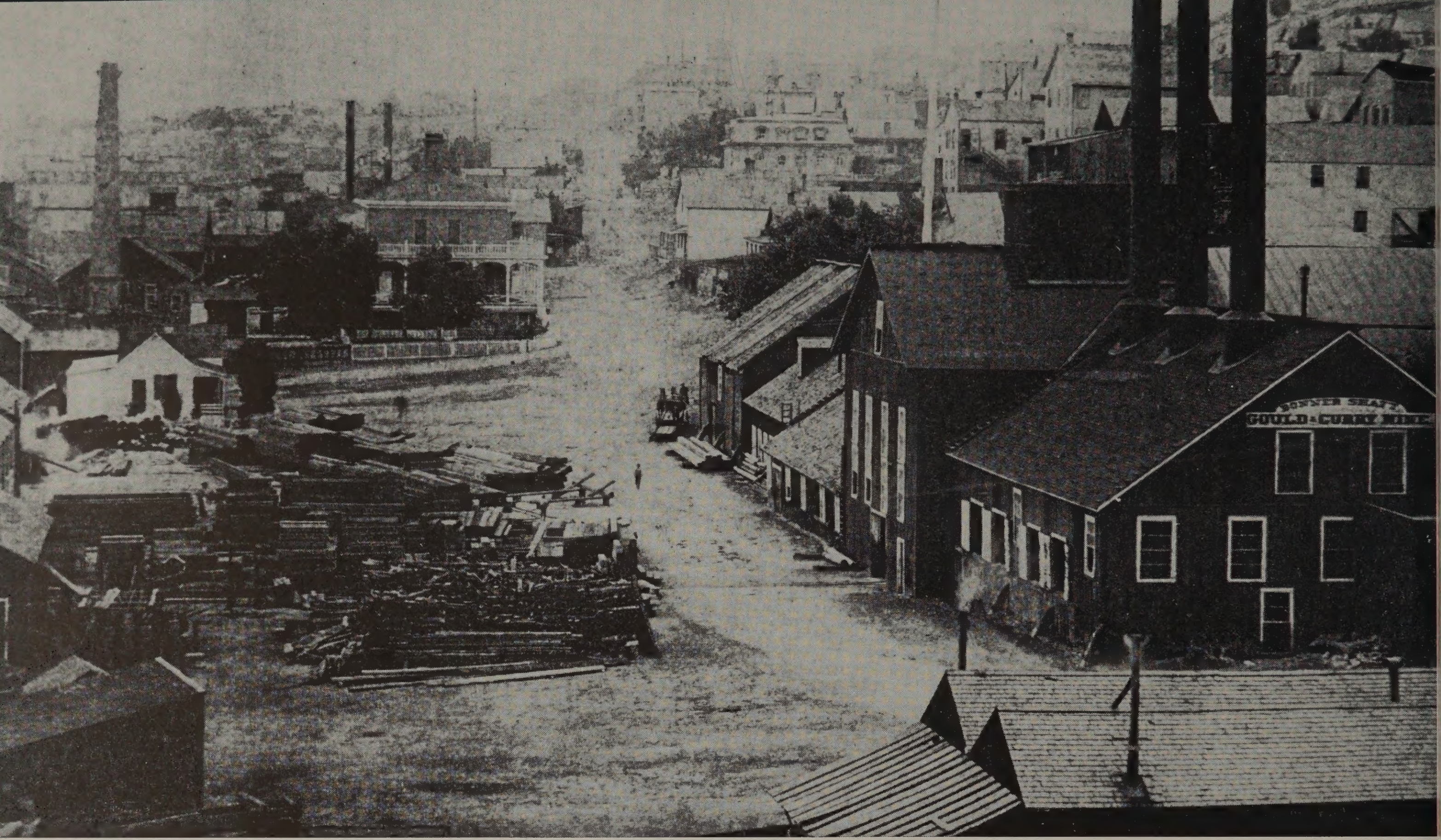
That same day H. P. T. Comstock, another prospector, known as "Old Pancake," came upon the place where the two men were digging and Comstock claimed an interest in the ground. He was able to convince the two genial Irishmen of the validity of his claim and, as a consequence, was taken in as a partner. Emmanuel "Manny" Penrod, another local character and a friend of Comstock's also managed to get a cut in the deal. Later Comstock's name was attached to the fissure, or lode, which had been exposed and the name stuck. Since then many hundreds of mining claims have been recorded in the Storey County, Nevada, Mining District.

That notable discovery occurred in the days before Nevada became the 36th State of the National Union, but it had much to do with the acquisition of Statehood in 1864.

Events at Virginia City soon assumed colossal significance. Prospectors were aroused to a high pitch of excitement and quickly they changed their methods of operation and clamored for the recovery of the "blue stuff" a material which they had been panning, but throwing away because they believed it worthless. Belatedly they learned it was a rich silver sulphide, and silver was worth $1.29 an ounce at the time.

It wasn't long until the new camp was crowded with all classes of men and, with all the trimmings, a raw, western mining town began to boom. The camp became subject to intense growing pains. Gun rule, at first, in the absence of organized government was the tolerated custom, but in due time law and order prevailed and Virginia City started on its course to world fame and riches.

While the extent and possibilities of the district were slow to unfold, they had a far-reaching effect and influence. When the real magnitude was determined new wealth was brought forth from the earth in huge quantities. This wealth strengthened the credit of the Nation, which was then in the midst of a Civil War; it vitally affected the growth of San Francisco and eventually brought about a decided change in the political set-up of the West. The Washoe Region, where the discovery was made, at that time was a neglected part of western Utah. When the rapidly increasing population became restless it sought a more direct administration of its own political and judicial affairs. This movement developed strength, grew fast, and came to an early success. Out of it, first a Territory and



The Bonner shaft of the Gould and Curry mine when the Comstock Lode was humming with mining activity. From an old-time photograph.

then a State was born. Virginia City and the Comstock became a part of Nevada State on October 31, 1864, but the camp never realized an ambition to become the State capital. That honor went to Carson City where it has remained.

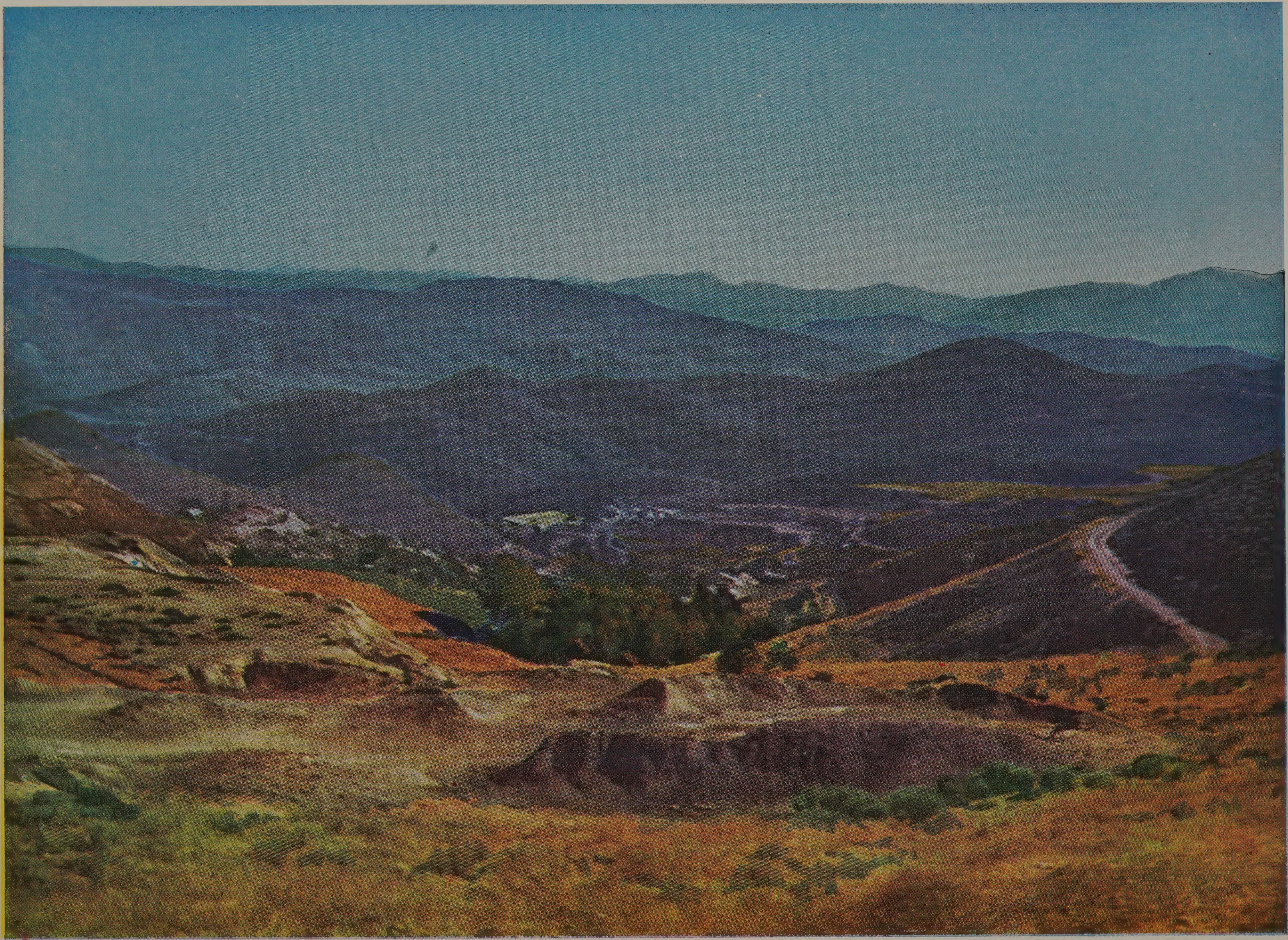
From a rough, rugged camp composed almost entirely of tents and shacks, Virginia City developed into a community affording all modern conveniences as they were then known. A close commingling of men and women of all kinds who came to the Comstock brushed away many social differences. Men and women accepted things as they were and this brought about a friendliness in the settlement which grew into "the spirit of the West." Civic pride in the town was deep-rooted and to this day native sons and daughters and their descendants speak with pride and sincere affection of old Virginia City and the Comstock. This loyalty is best expressed by the term "hot water plug," a glorified term which attaches to the descendants of Nevada's famous mining camp.

From the very nature of the surrounding country the district lacked a condition of self-sufficiency. The desert was bleak and barren. Its soil yielded little. Water was a precious commodity as there was very little in the vicinity. Summers were dry and hot; winters were stormy and cold. Supplies of all kinds, needed badly by a bulging booming community had to be brought in from the outside. Food, drink, clothing, machinery, materials for carrying on mining operations, in fact everything to sustain life itself was lacking, even though the necessary silver and gold to buy these things was wastefully plentiful.

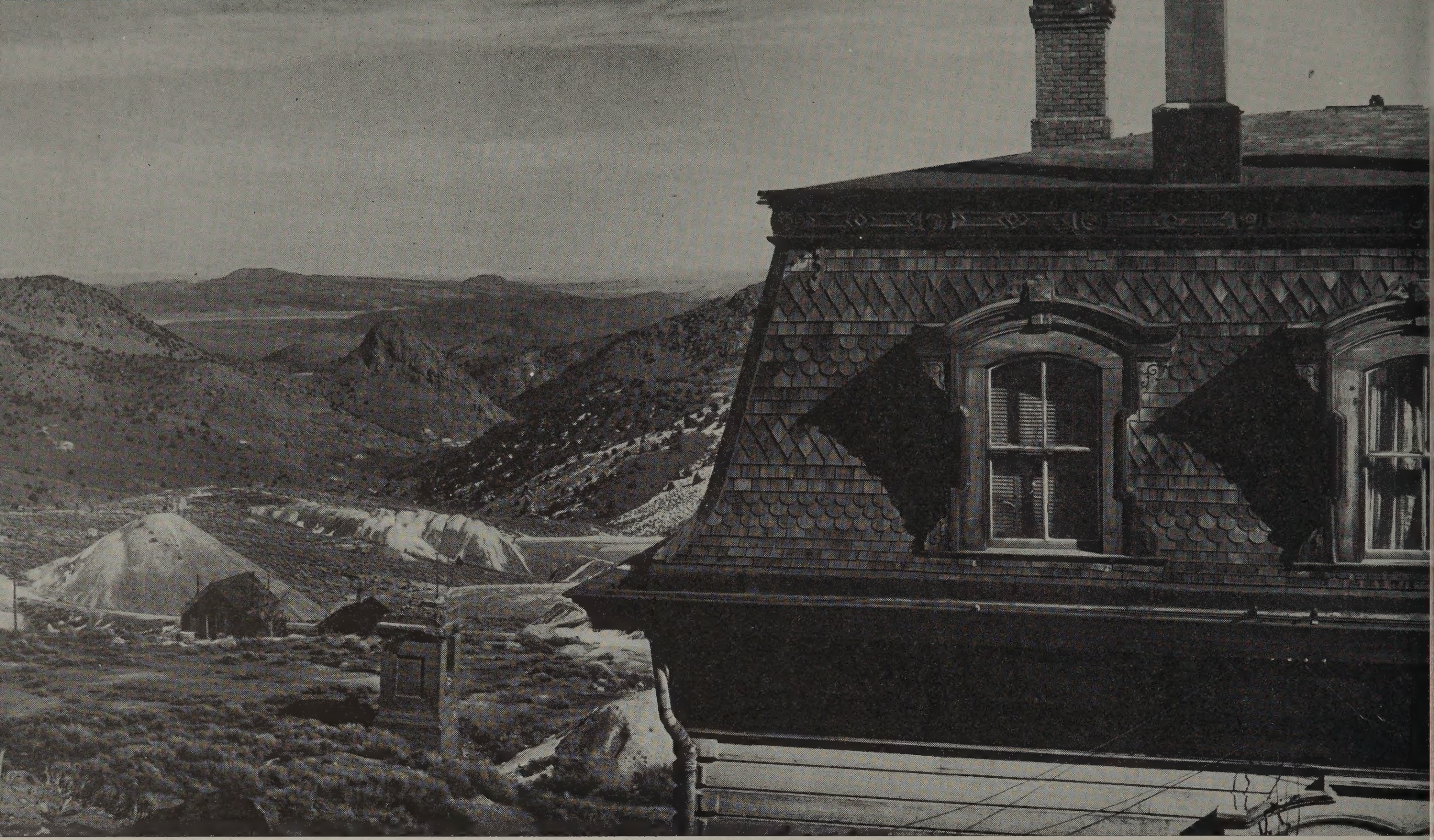
California, next door neighbor to the west and only partially developed at the time, became the source of supplies. Beaten trails and roads were worn across the Sierra Nevada Mountains to the trade centers of Placerville, Sacramento, and San Francisco. Wagons, ox-carts, stages, and mule trains trod those routes in a continuous stream of traffic. Through wind and storm, heat and cold, the never-ending line of traffic plodded to and from the sensational camp, supplies going in, ore and bullion being hauled out. Through these trade channels the commissary and the population was maintained and increased. Transcontinental railroads were still in the talk stage, and any one who spoke above a whisper about flying machines was a screwball.

Tales of harrowing incidents enlivened pioneer freighting over the mountains and fill many a page of Nevada's early history. Raids by bandits, or road agents, were commonplace; wild plunges over steep precipices, in the high Sierras, by man, stage, or animal, disturbed only momentarily the routine of the caravans in motion. Encounters with the bad men of the hills whose stock in trade was a gun, a mask, and a dark night were incidents looked upon as necessary evils. Runaway teams on mountain roads added to the excitement of a stage journey. When road agents got too bold in their nefarious operations, quick justice was dealt out by using a rope and a convenient limb of the nearest tree. A trip by stage from Placerville, California, to Virginia City, a distance of little more than 100 miles over twisting, narrow, dirt roads and steep grades, was uneventful which could recount only one or two narrow escapes.

The older mines yielded rich ores, new mines were started, and the lode was gradually extended. Eventually its limits were defined. It was determined to have a north-south direction persisting for about three miles. The populace came to believe that the silver and gold harvest would last forever. Comstockers even grew fearful that the immense production would upset the world's monetary balance.



Panoramic view of the mountain terrain in the Virginia City region. Note the mine dumps in the fore of the picture and the successive ridge elevation.



Sugar Loaf Peak, down Six Mile Canyon, as viewed around the corner from a mansard roof, showing mine dumps in left foreground.

As development proceeded, the Comstock lode became more than a local concern. Reports regarding its richness and broad ramifications spread far and wide. Everybody in the West, indeed throughout the Nation and across the seas, focused their attention on the great earth fissure which gave up gold and silver by the ton. Some of the better known mines on the north end of the lode included such familiar names as the Sierra Nevada, the Union, the Ophir, the Mexican, the California, the Consolidated Virginia, Gould and Curry, Savage, Hale and Norcross, and the Chollar-Potosi.

To accommodate the excited crowds in Virginia City and the speculative-minded folks in distant communities many brokerage houses were opened and did a great business; innumerable stock companies were floated with millions of shares each, Pacific Coast banks established important branches in Virginia City, and strong vaults were built to keep the bullion in safety until it could be transferred to the San Francisco mint. The U. S. Treasury Department later opened a branch mint in Carson City to handle the huge supplies of bullion coming from the Comstock Lode, and this branch remained in active service from 1870 until June 30, 1893, when coinage was suspended.

Mining of the ores on the Comstock at first was slow and difficult. It was done by hand, single jack, drill bit, and pick and shovel. In spite of this laborious method, tonnage production gradually increased. Mechanical devices eventually found their way to the new mining camp and it became a proving ground for new gadgets, some of which were highly successful in their operation while others were worthless. Comstockers were a progressive lot and quick to accept new and better methods of mining their ores, and it was not long before they put into service the air-hammer drill. Use of air drills speeded up production and revolutionized mining methods. Deep shafts were sunk on the lode in quick time, then drifts were pushed from these shafts in all directions until the underground workings extended for miles under the city. Broken ore was trammed to the shafts where cages, or lifts, raised it to the surface. When large bodies of ore were encountered and mined, opening huge, gaping underground chambers, the problem of support for the walls became an insistent one. Soft ground caved readily, creating hazards and endangering lives. Ventilating systems were installed to provide good air to the underground workers.

Timbers for the mines and for the surface buildings were cut in the forests 20 miles distant to the west, where the mountain slopes were covered with trees of large growth. Millions of feet of timber were delivered, part way by water flume, to Virginia City to be used in mining operations of all kinds.

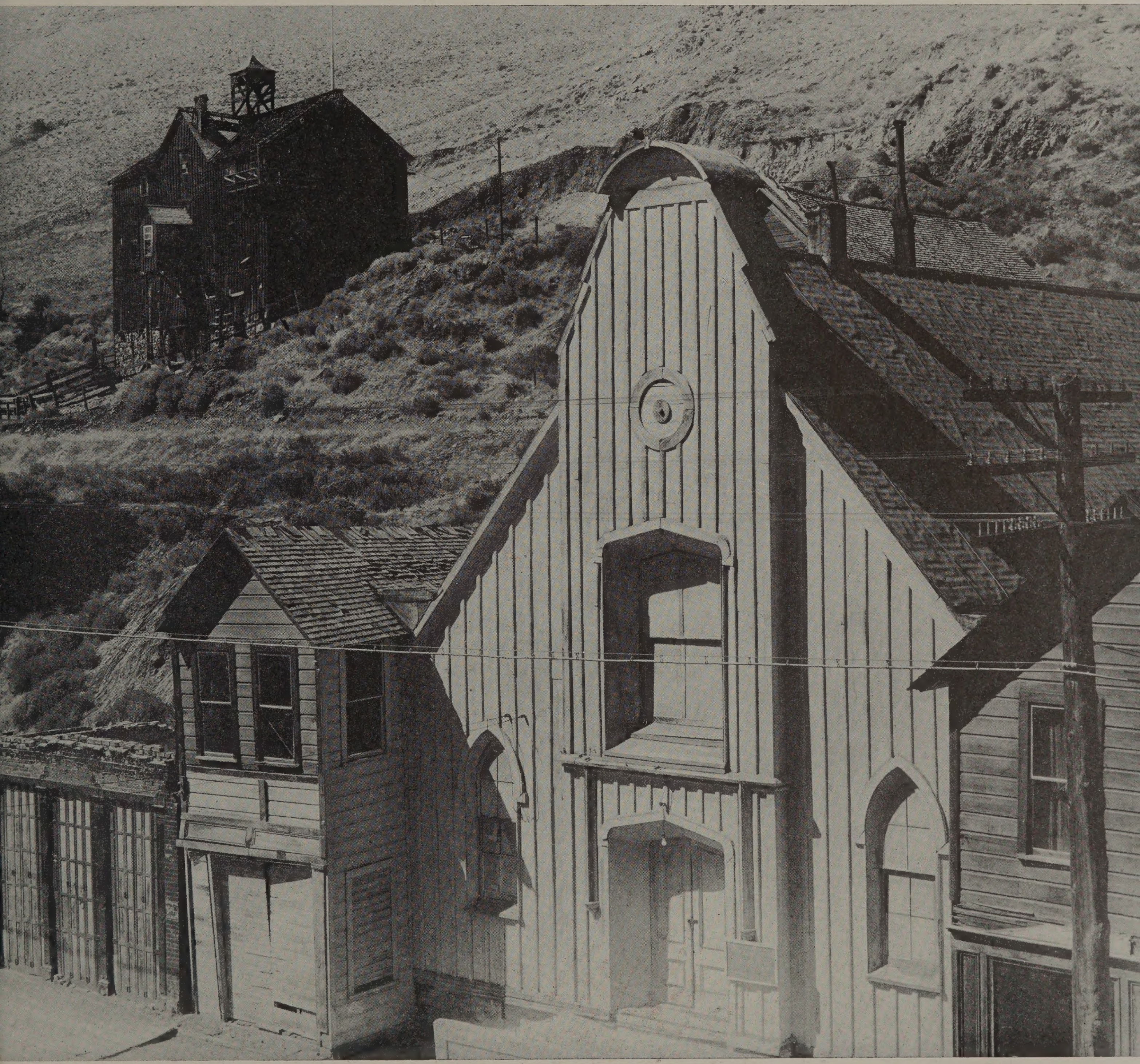
Philip Deidesheimer, a local mining engineer, conceived a new method of underground timbering which was called the "square set," and this was so successful it was universally adopted for all of the mines. Timbers ten and twelve inches square, cut to suitable lengths, were joined and built up, section by section, for mine supports.

As the lode was extended southward from the original discovery site, two other towns of considerable size kept pace with the growth of Virginia City. These were Gold Hill, south of the "Divide," and Silver City, three miles down the canyon just below the Devil's Gate. The Devil's Gate was a narrow, natural break in the regional volcanic rocks and afforded enough space between the bounding, precipitate walls for a one-lane dirt road and a shallow, narrow creek. This road became the southern outlet for the entire Comstock region and linked the mining towns in the canyon with the mills along the Carson River and also with Carson City. Another road was later pushed northward from Virginia City giving a second outlet. This north road is the famous Geiger Grade, now paved and one of the most scenic drives in the entire West.

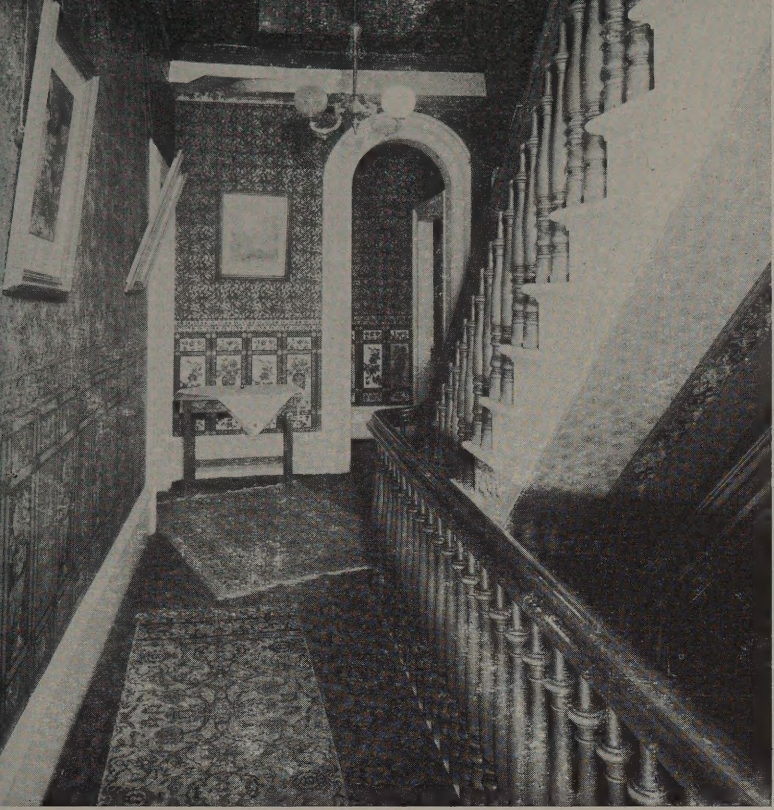
Gold Hill, although practically a geographical continuation of the Virginia City area, was a separate and independent community. Rich ore found in that locality made some of the best dividend payers on the lode. The Empire, the Yellow Jacket, the Kentuck, Little Gold Hill Mines (Sandy Bowers property), Crown Point, and Overman were a few of the more notable ones.

Silver City marked the south end of the lode development. While ore there was less spectacular in value than that farther up the canyon, consistent progress in mining low-grade ores has prevailed ever since. Currently Silver City continues to produce gold and silver from its neighboring mines.

Great rivalry existed between the citizens of the tri-cities



The old Presbyterian Church, C Street, and the Corporation House (Virginia City Fire Department), on the east flank of Mount Davidson.



Stairway and bannister in one of the palatial homes of early Comstock days.

Early style solid walnut bed, when gaslight fixtures were in vogue.

Interior view of St. Marys in the Mountains, Virginia City, Nevada. (Opposite page.)

Dining room, old-style, so popular in the booming Comstock era. It is now the McGuirk home in Virginia City.

View of the famous silver and gold mining camp of Virginia City from the concrete ruins of the Combination Shaft.

and each was jealous of its own independent political make-up. Citizens of the three communities tried to outdo each other in their public, civic, and social happenings. Miners held hot contests in sports or drilling matches and vied with each other in tonnage production. Fire drills, held in one or the other of the towns always brought out the best drilled teams, and attracted the largest crowds. Holiday celebrations were gala events when decorations of bunting and flags reached all the way up and down the canyon. There was the inevitable parade, and teams would make strenuous efforts to outwit each other. Frequently these spirited clashes ended in rough and tumble fights, feeling ran high, and occasionally there was shooting before the crowds dispersed and headed for home.

Despite this intense rivalry whenever an emergency arose in any one of the towns, citizens of all three jumped to the alert, acted as one unit, and gave all possible aid to those in distress.

In 1863 the county and town governments started functioning. Proper courts were established; peace and prosperity seemed assured.

Amusements in the early days of the mining camp were in keeping with the character of the people—the rougher the better. Prize fights were popular, and any other type of contest in which physical skill was pitted against brawn always attracted big crowds. History also records that large crowds witnessed bear and dog fights on frequent occasions. One of these, it is related, did not turn out so well, for after the dog was whipped by the bear the police stepped in and arrested the managers.

While the men of the Comstock during the "flush" times were considered reckless in their personal habits, there was a much better side to this mining community. This asserted itself in religious worship. Several religious denominations entered the field of labor at Virginia City in their effort to save souls and allay wickedness. Among the churches established there were the Protestant Episcopal, Methodist Episcopal, the Presbyterian, and the Roman Catholic. Probably the most ornate of these edifices was St. Marys in the Mountains. When rebuilt in 1876 it was a brick structure of considerable size with a tall spire, and an elaborately furnished interior. It is now one of the most interesting historic spots of the old mining town.

Comstockers had a keen sense of quality in entertainment, particularly in the matter of theatricals. Piper's Opera House became famous as a place for meetings; public, political, social, and theatrical. Some of the best road shows and theatrical groups of the time played to packed houses in this theater. Audiences relished such stars and headliners of their day as Edwin Booth, Lawrence Barrett, John McCullough, and Tom Keene. Ole Bull, famous Norwegian violinist, visited there and played before appreciative audiences. Frank Mayo, Joe Jefferson (of Rip Van Winkle fame), and Fay Templeton, all outstanding thespians of their time, thrilled theater goers of Virginia City with their histrionic abilities.

Nat Goodwin, Denman Thompson, Tony Pastor, and Lotta Crabtree were names which flashed brilliantly in the theater firmament of those days and they all played Piper's. Emma Nevada, Mme. Modjeska, and Patti added luster to the long list of songsters who stood before the footlights of this once famous opera house.

Among the spellbinders Henry Ward Beecher, Colonel Robert Ingersoll, and Henry George can be named as the headliners, while spectacular William Cody ("Buffalo Bill" to an older generation) stirred the Comstockers with his expert marksmanship and his thrilling Wild West Show.

The history of the Comstock is a recital of many successive periods of prosperity and depression. Among all the fluctuations which the camp experienced, the depression of 1864–1865 was a severe one. During that time, nearly all of the mines stopped paying dividends, stock prices hit bottom, estimates of the value of the mines dwindled exceedingly, business was in a deep slump, ruin and general desertion of the town became a grim specter. Mines shut down, houses were moved away, development practically ceased and the camp was apparently doomed. From the time gold and silver mining first began, up to 1865, the yield from the mines had been about $45,000,000. Virginia City then had a population of 15,000. Although the depression struck hard, the people of the district staged a great come-back and it was not long before prosperity was again on the up-swing.

Many of the Comstock mines shareholders were assessed to the extent of millions without ever getting a dime back. In contrast a number of the better mines paid out millions to their stockholders in dividends. Stock trading both on the Virginia City exchange as well as on the larger exchange in San Francisco was on a colossal scale. Prices of some of these stocks fluctuated widely and rapidly, sometimes because of reported new strikes, often because of reported new strikes in neighboring ground. One and all in Virginia City seemed to be "playing the market" and brokerage houses, as well as hotel lobbies, were the scenes of many stock transactions, running into millions of dollars. The fever spread to the coast and San Franciscans were just as badly smitten.

Even though the depression had left its mark in great losses to stockholders, shareholders, and labor, the community did not lose courage and held on to its unbounded faith in the productive capabilities of the lode.

Just about this time many huge projects affecting the district were considered and put under way. Among them were the Sutro Tunnel, the project for bringing water from the Sierras to the city, and the building of the Virginia and Truckee railway.

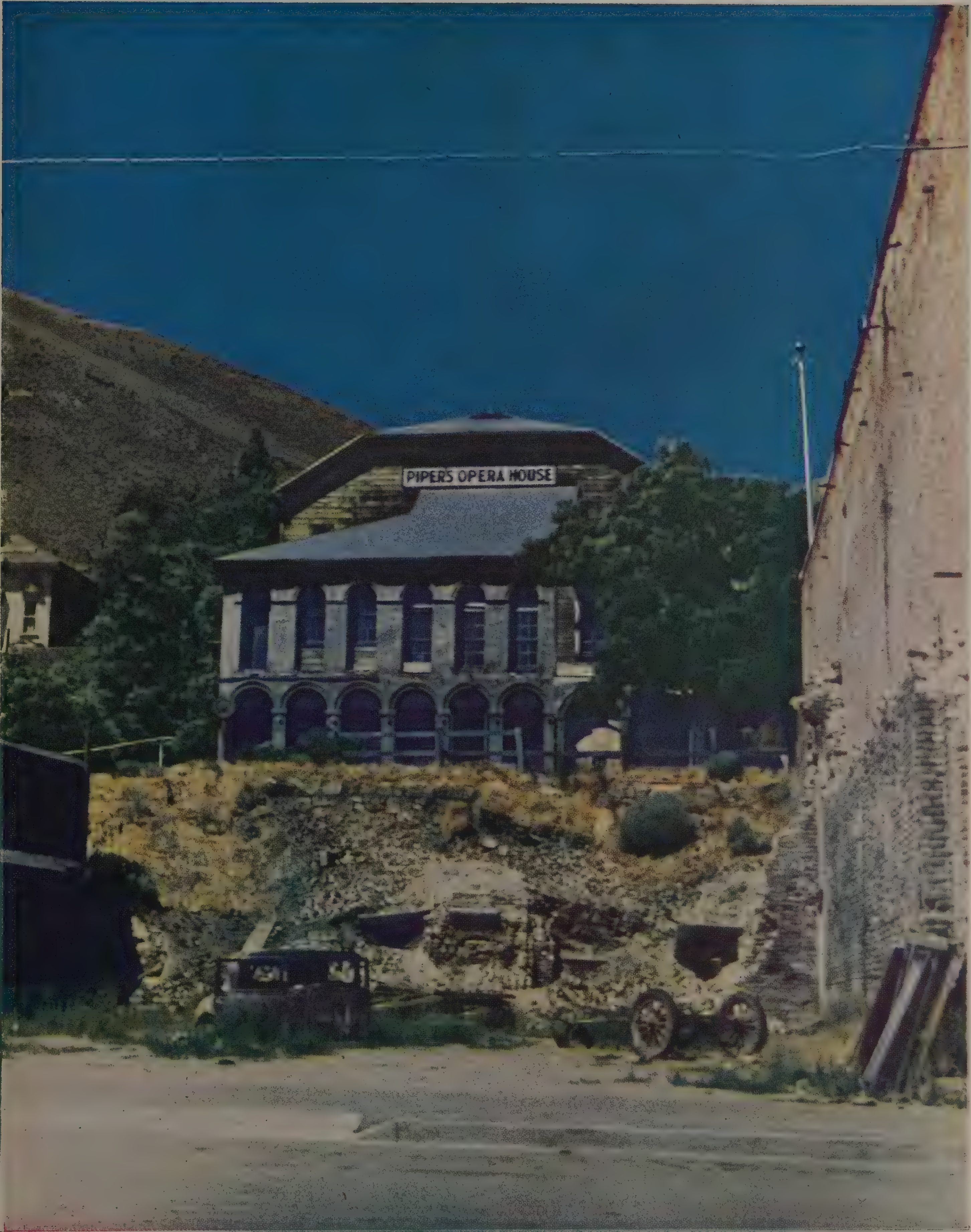
The Sutro Tunnel was an enterprise of vast proportions which proposed to tap the mines at a depth of 1,600 feet below the surface. When completed the six-mile hole through the Flowery Range of mountains was expected to drain all the hot water from the underground workings to facilitate mining operations.

The Sutro Tunnel idea was received at first with enthusiasm on all sides. It seemed not only practical but highly beneficial. Then, as plans were developed, other powerful forces in Virginia City and elsewhere asserted themselves, and it was not long before a friendly reception grew cold and even turned into a bitter opposition in certain quarters. Adolph Sutro, originator of the plan, fought his way, inch by inch, and stubbornly persisted in spite of overwhelming obstacles until the project was completed. Victory over his opponents had lost much of

Storey County Court House. What thrilling tales of early-day Nevada mining history its records can tell!

"Hot water plugs" will all remember this brewery, still standing but not brewing, down Six Mile Canyon way.

John W. Mackay, one of the "bonanza kings" lived here while his Con. Virginia mine was developing the "big bonanza."



Piper's Opera House, one of the cherished shrines of the theatrical world. All the big names played its footlights in the "good old days."

The former Dr. Cole home on E Street, Virginia City, was a masterpiece of residential architecture.

its glory because, by the time the bore was finished, Virginia City mines had already reached depths below the drainage tunnel level. The Sutro Tunnel still stands, however, as a monument to the memory of a man who had courage and confidence in himself and his work.

Building of the Virginia and Truckee Railroad to the Comstock was a daring enterprise. It seemed impossible of consummation because of the unfavorable mountainous terrain through which the road was to be built. Nevertheless, the impatient millowners and miners needed more adequate means of transportation and so it was put through in record time.

The road was built in 1869 in spite of tremendous obstacles. Eventually it became a rail connection between Virginia City, the mills along the Carson River, and Carson City, the State capital. Later the rails were extended to Reno, where a transcontinental connection was afforded with the Central Pacific Railroad. At one stage of the Comstock operations, the V. & T. was running as high as 50 trains a day in and out of Virginia City. The line was 52 miles long but large volumes of freight were very good reasons why the railroad paid for itself in a very short time. Operations over this line from Carson City to Virginia City were stopped several years ago, and the rails removed.

Water to supply the community was piped over the mountain and valley route by the Virginia and Gold Hill Water Company. Bringing in of this needed water from the source of supply in the Sierras, at Marlette Lake, to Virginia City was considered to be one of the greatest engineering accomplishments of the time. Internal pressure exerted against the metal tubing as the water flowed through it down the east side of the Carson range then over the low divide at Lakeview and along the ridge of the Virginia Range was so great that skeptics declared the project doomed to failure. Nevertheless the water line was completed, water directed into the pipes, and this water reached the Virginia City reservoir without any mishap. With only an occasional minor "break in the line," which is quickly repaired, the system still serves the Comstock area.

In 1875 there was a big "bust." January of that year saw stocks at their highest figures, and mining proceeding at a terrific pace. Everyone seemed sure that all was well. During August of that same year, the lightning struck. Prices of all classes of stocks skidded and tumbled. Before the storm was over they showed a loss of $100,000,000. During one week alone Comstock shares shrunk $42,000,000. A panic resulted from this crash and the 26th day of August was a day of financial grief for the whole western coast. It was labelled "Black Friday." Men lost fortunes and walked about the San Francisco financial district dazed and in despair. The California

Bank, considered the strongest financial institution in the West at that time, closed its doors. Wm. C. Ralston, its leader, resigned as head of the board and later his body was found floating in San Francisco Bay. The financial storm had struck with merciless severity. Things looked black indeed for Virginia City and for San Francisco.

Comstockers met the thunderbolt, struggled through the storm period, rolled with the punch, gradually pulled themselves together and emerged from the dark days to begin another climb to even greater financial heights.

Prior to this crash John P. Jones and William Sharon, of California, were active leaders along the Comstock. Jones, one of the outstanding characters in the new mining camp was the discoverer of the Crown Point Bonanza at Gold Hill. He became wealthy and powerful in politics, was popular among the Nevada citizens and became United States Senator.

Sharon, however, was the dominant figure on the Lode. He became Virginia City manager for the powerful Bank of California. Through acquirement and control of many properties, including both mines and mills, he became one of the most dominating characters in the mining camp. There was a saying along C Street that everything Sharon touched turned to gold. He, with his associates, formed the Union Mill and Mining Company, and captured control of most of the mills on the Comstock, and also over the V. & T. Railway. Between the two organizations Sharon was able to control the timber and wood trade necessary for all the Comstock mines and mills. When the depression of "Black Friday" hit, Sharon was smack in the center of it, and eventually passed out of the picture. Again conditions in Virginia City changed.

During the period of transition another group rose to lead. They were to become known as the "Bonanza Kings." This group consisted of John W. Mackay, a former New York clerk, who became an expert miner on the Comstock; James G. Fair, also a miner, who had the reputation of "having the best nose for ore on the Comstock"; James G. Flood, and William O'Brien, former saloonkeepers in the financial district of San Francisco. The four worked together in complete understanding, Mackay and Fair in Virginia City and Flood and O'Brien at the San Francisco end.

Eventually these four men came into control of 3,000 linear feet of the Comstock lode north of the Hale and Norcross properties. Along the ground secured, they drove an underground exploration drift and the result was the discovery of the great bonanza in the Consolidated Virginia and California mine. It was one of the most sensational discoveries of the camp and eventually yielded $120,000,000 in gold and silver.

The width of the great ore body varied from 150 to 320 feet and was 400 feet from the bottom to the top. It was in rich ore. Streaks and bunches of black sulphurettes—almost pure silver—appeared at frequent intervals. The tracer vein was thin but eventually broadened and disclosed the great deposit.

Four years after this discovery of the "great bonanza" it was worked out and stocks again tumbled to a new low. The Comstock Lode was running true to form—from plenty to poverty in a series of recurring cycles.

It is to the credit of John W. Mackay that he was grateful to the State of Nevada from whence came his great wealth. His gratitude and the gratitude of his descendants are strikingly evidenced in the Mackay School of Mines Building and the Mackay Science Hall, both modern and imposing structures, on the campus quadrangle of the University of Nevada.

When the huge ore bodies of the Comstock had been worked out, activity in the district slowly but definitely declined. Some of the mines kept active for many years, but eventually they became bottomed. Hot water, gaseous vapors, and lower quality of ores brought about this gradual decline. Currently there is little activity on the Comstock Lode in Virginia City itself.

Estimates of the total production of the mines along the Comstock lode vary, the figures running between $395,000,000 on the conservative side, to a maximum of $750,000,000 on the more liberal estimates. The precise figure probably will never be known because of the lack of definite records covering all phases of operation along the great fissure in western Nevada. In any event, the production figures are large enough to give the district the reputation of being one of the greatest mining camps in the world.

Fires added spasmodically to the excitement of the great mining camp which rose to such proportions after O'Riley's pick struck the "quartz lead." The combustible material from which the town was built, added to the fact that high winds—they were facetiously called "Washoe zephyrs"—were of common occurrence, made the fire hazards at Virginia City unusually great. The fire demon broke loose in August of 1863, and destroyed about $700,000 worth of property in the principal business part of the town.

The Great Fire, the one long to be remembered and the most destructive, started on October 26, 1875, and practically destroyed the town. The loss was placed at $12,000,000. Besides the business section, mills and hoisting works were also swept away by the flames. Vast quantities of powder near the town exploded increasing the horror of the scene. The mill of the Con. Virginia which had cost $500,000 was destroyed. There were over 300 business houses and 1,000 dwellings licked up in the flames. The fire laid Virginia City low. The people, discouraged but not defeated, set to work rebuilding, and before the ashes were cold reconstruction was in progress and things were again running within thirty days. The spirit of the Comstock could not be squelched and the city was rebuilt better than ever.

Accidents in the mines were numerous. It has been recorded that deaths from accidents in Virginia City had averaged one a month up to 1876.

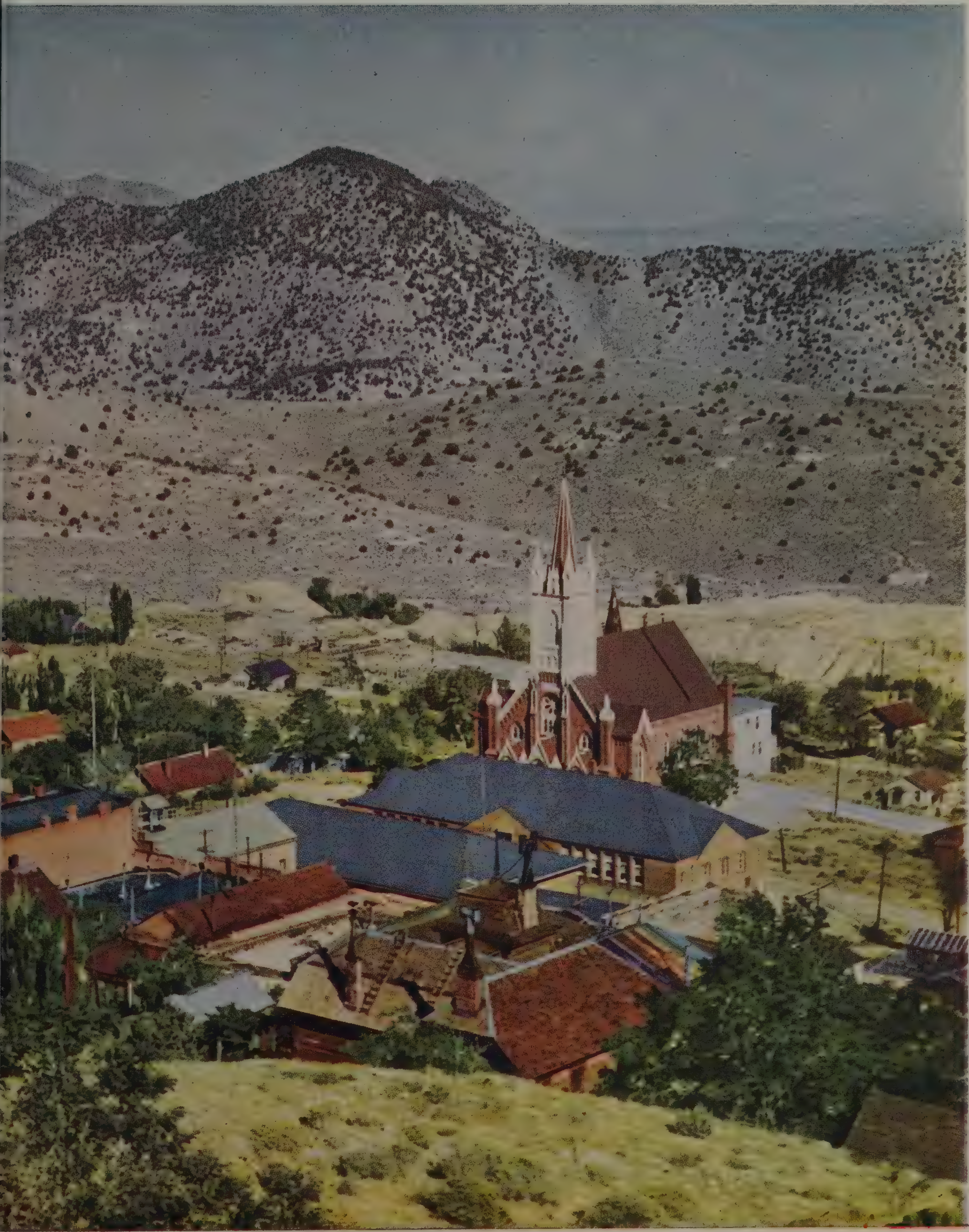
The worst accident recorded in the area was that of April 7, 1869, in the Yellow Jacket mine. This day was looked back to as the "Black Day." Fire started on the 800-foot level about 7 o'clock in the morning. It was supposed to have been caused by a burning candle left on some dry timbers. A part of the day's shift had been lowered into the Yellow Jacket, Crown Point, and Kentuck before the flames burst out. Impossibility of access to the lower levels in efforts to rescue the men caused a death list of 36 persons. This fire burned in some portions of the mine for three years.

Another fire occurred in the Yellow Jacket on September 19, 1873, during which four men were killed and about a dozen injured. The Kentuck, Crown Point, and Belcher, being connected with the Yellow Jacket, were more or less damaged by fire.

Shortly after the big fire in 1875, citizens commenced the building of substantial structures which made Virginia City an outstanding city of the West. The new International Hotel

(*Please turn to page 29*)

This is Virginia City, Nevada, as it appears today. Production in excess of $400,000,000 in gold and silver came out of ores



nd beneath its streets and buildings. The dumps represent millions of tons of material taken from the underground workings.

Shelter house for field workers, beside a patch of growing plants at Logandale, Moapa Valley, Nevada.

Workers harvesting tender seedlings from an Overton field. 70,000,000 tomato plants were harvested last year.

Main Street, Overton, where most of the conversation these days may be about fish, tomato and celery plants, and cantaloupes.

Seventy Million--That's Shipping a Lot of Tomato Plants

DOWN in the extreme southeastern corner of Nevada, where desert skies are azure blue the whole year through, fertile Moapa Valley stretches its broad acres over a large patch of Muddy River bottom land. The valley appears like an oasis in a semidesert country. Its successfully cultivated and developed lands stand out in sharp contrast to vast arid surroundings of colorful rim-rocked mesas and a rugged mountain background.

Besides its importance as an agricultural region specializing in plant culture, dairying, garden truck, and melon growing, Moapa Valley can lay claim to several other distinctive features. The south end of the valley borders the shore line of a long, narrow arm of Lake Mead. This puts the valley in a semiaquatic status. In addition to this asset it affords a gateway to outstanding natural scenic places of deep color and rugged terrain such as the Valley of Fire and the Mormon Mesa. On top of that, the several small towns in Moapa Valley recently have gained recognition as favorite shoving off places to new and wonderful fishing waters on Lake Mead. Then again an industrial operation of major importance involves large-scale development of silica sand deposits which are used in the making of glass containers of all types for the canning and other trades.

Moapa Valley is not a large valley; in fact its total productive area probably will not exceed 10,000 acres. And not all of these are currently in production. These acres, however, yield abundantly and are responsible for a highly prosperous section of Nevada.

Although small, no one could mistake its site nor doubt its existence while traveling over a paved highway, Nevada State Route Number 12, which serves its people. The line of separation between desert and fertility is definite and conspicuous. One comes upon the valley suddenly after rounding an easy bend at the top of the grade, a mile or so north of the first ranch. The transition from barren hills to picturesque pastoral lowlands is quick and pleasing.

Passing plowed fields of black soil adjoining grassy green meadows, on either side of the highway, one gets the impression that the land is rich as compared with its more rugged and cheerless environs. Well-kept ranch houses and barns, with lawns and flower gardens bordering the homesteads, and small fruit orchards nearby, all reflect the progress of a thrifty ranching community. Grazing Holsteins and Jerseys in the pastures, flocks of cackling chickens and waddling ducks in the barnyards, row upon row of paper-covered tender plants in back-yard patches, tell of the specialized dairy, poultry, and seedling plant industry which is carried on in this delightful garden spot of Nevada. Shallow ditches running along fence lines carry precious water that quenches thirsty fields. Moving tractors pulling plows that roll back multiple furrows of the good earth indicate the type of farming and the progressiveness of the ranchers on the project. Groups of tall, well-shaped trees, mostly elm and poplar, are scattered plentifully throughout the valley in the fields, along the highways, and near the homesteads. An occasional date palm, with its swaying fronds, suggests the semiarid climate of mild winters and hot summers.

Brown cliffs sharply outline the boundaries of the valley floor and form the front walls of long, flat tablelands stretching high and away in all directions. Several miles to the northeast, a little beyond these conspicuous flat areas, a rugged mountain range with several prominent peaks pierces the blue heavens. These rock masses form a barrier against which scudding clouds, sometimes loaded with rain in midwinter and early spring, roll and churn in angry mood. On all sides, outside the valley limits the land appears parched and barren.

Pulling and sorting Moapa Valley seedlings ready for shipment to distant points and transplanting.

kers pulling and bunching radishes in Moapa Valley field, ready for marketing.

The monotony of the landscape, although colorful, is broken only by a conglomeration of low, rounded rocky knobs, and clumps of greasewood showing occasional green. Trees in the outlying area seem to be few and far between.

One would hardly expect that in such a semiarid region there is nestled one of the richest small valleys in the entire State of Nevada. Growing fields and annual revenues which sweeten the ranchers' purse are proof, nonetheless.

Moapa Valley land is well adapted to agriculture of a specialized nature. The soil is exceptionally fertile and there is a substantial but consistent water supply available for irrigation. Winters are delightfully mild with little rain or snow—the average annual rainfall of the district is recorded as less than six inches. Summers are long and hot, "and the skies are not cloudy all day."

Through this valley flows the waters of the Muddy River, a small, spring-fed stream with not more than 35 miles separating its source from its outlet. Its waters are vital to the prosperity of the valley, and these waters are diverted through ditches and shallow canals to serve all the ranchers of the project. Every drop of water of the Muddy River is carefully conserved and put to its greatest possible use in cultivation of the crops.

A few miles south of Overton, waters which remain after quenching thirsty fields, converge with those of the Virgin River. The combined streams then empty into Virgin River Wash, a long, narrow embayment of Lake Mead, on the Colorado. Elevation of the valley is about 1,200 feet above sea level, one of the lowest topographic regions in the entire State.

The Muddy is a small stream—one can easily throw a stone across the channel from bank to bank in almost any place—but its flow is steady and dependable. Existence of the many springs which give the river its start were known and eagerly

A general view of the Valley of Fire, looking eastward. The red sandstone outcrops reflect spectacular color.

Look what a fine job the wind has done with its sandstone tools. Bee Hive Rock, in the Valley of Fire.

Crated plants from Moapa Valley fields going on a long, fast journey in a refrigerator car.

sought by the pioneers traveling westward in their ox-drawn wagons, across dry desert lands, on the southern route to California. The springs, almost hidden among many clumps of trees, located several miles north of the village of Moapa, have never failed. They keep water rolling down the Muddy all through the year. Where this spring water comes from no one knows, but several theories have been advanced concerning its origin. Some folks of the valley believe the water flows for hundreds of miles underground before it emerges as springs. The largest spring, located near the Hoffman ranch, is 60 feet long by 35 feet wide, and is about 7 feet deep at its deepest spot. Lukewarm water issues from its subterranean source. The Hoffman ranch contains about 1,200 acres, and is located seven miles north of Glendale. Glendale is junction point for two highways, U S 91 (The Arrowhead Trail) and U S 93 (The International Four States Highway).

At one section, four miles north of Overton, the Muddy River has cut through a limestone mountain to form a picturesque gorge known as The Narrows. This gap is half a mile wide and about a mile long. Cliffs on either side of the river rise abruptly 350 feet above the water level.

Population of Moapa Valley does not exceed 4,000 in number. Folks of the valley are settled on ranches and in several small communities. Moapa, Glendale, Logandale, and Overton are the trading centers for the ranchers and are small, but thoroughly modernized towns. Good highways and rail service are also valuable assets to these communities.

The ranchers are industrious western irrigation farmers who have adapted themselves to all the modern appliances such as tractors, cultivators, trucks, automobiles, radios, telephones, airplanes, electricity, and air-cooling systems for their homes. They enjoy life amid comforts often lacking in less isolated sections of the Nation.

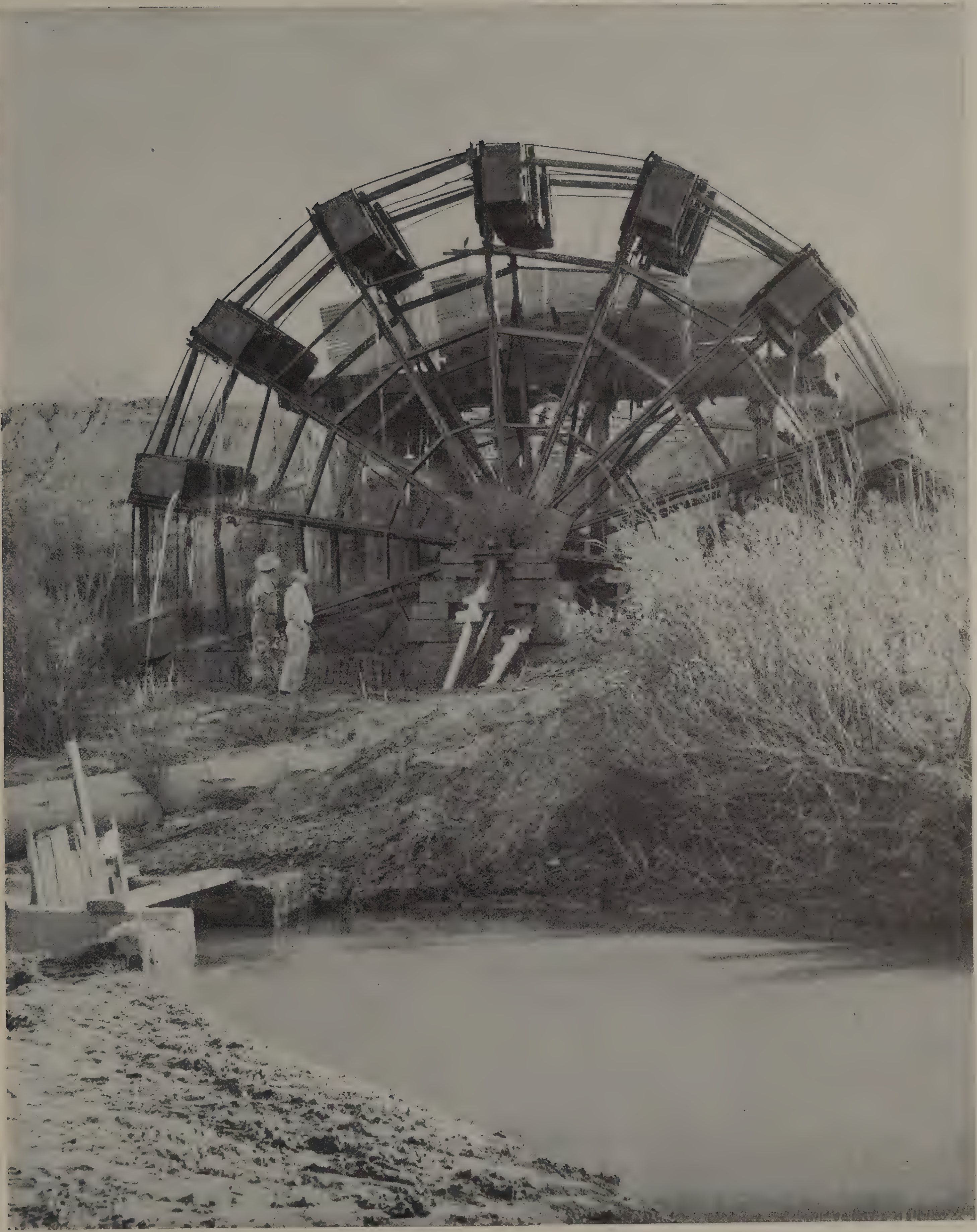
Nearly a century ago Mormon settlers came into Moapa Valley and began irrigating small plots of land by utilizing the flow of the Muddy River. Acreages were small, but through persistence and frugal living those ranchers, at a time when their isolation was a real problem, survived from year to year.

These early Mormons were a rugged and thrifty people. They just wouldn't be licked. This worthy trait of character now shows in their descendants. The status and well being of the present generation is an excellent example of what can be done through wholehearted cooperation, a tenacity of purpose, and labor on the part of a community working together toward a common objective.

In some years the old timers labored tirelessly, but in vain, because their crops were withered by the summer heat. As a consequence some of their number lost hope and courage that the land would ever yield a successful livelihood. But they clung to their homes and ranches and eventually fought the winning battle. The community, in a large measure, was sustained by its meager water resources. These first settlers, recognizing the fertility of the Moapa Valley soil, continued with their general farming effort in the usual, early day manner.

Because of the sparse rainfall Moapa Valley ranchers could not rely upon the rains to mature their crops. They depended solely upon the Muddy River for their water. While this supply is consistent and dependable in the early growing season, hot, long summers materially changed the outlook.

Several years ago a notable transition took place in Moapa



One way of dipping water from the Muddy River and pouring it into irrigation ditches, on the West farm near Glendale. Simple in design it works swell.

Valley. It was fully recognized and proven that the soil was well suited for cultivation of tomatoes and celery, early spring garden truck, and also for melons—particularly cantaloupes. Leaders of the community saw the possibilities of growing seedling plants for their crops and harvesting them before the heat of the summer could bring devastation. Supplying markets in other areas with young, tender, but highly perishable plants, offered a great opportunity, but at the same time it also presented a difficult problem and a challenge. The challenge was accepted and the problem solved. Modern ways of transportation was the key which unlocked the door to success. Delivering these products to distant markets in a thoroughly healthy condition was thus made possible. If tomatoes could not be successfully matured in Moapa Valley the early plants could be sent to other regions for transplanting. There favorable weather conditions later in the season would bring them to maturity. The project was tried. It proved successful. The experiment at first was limited to transshipment of tomato plants to nearby regions. Soils in the Moapa Valley were never known to harbor any noxious parasites or plant enemies which could harm the quality of the seedling plants raised there. This assured a high quality for the products, and to this day the ranchers of the valley are not troubled with plant-pest problems.

The experiments have been successful from the beginning. Tomato plant culture and transshipment as a farming specialty gained a solid footing among the Moapa Valley ranchers. After the pioneers had paved the way, others followed, and eventually tomato plant culture spread all over the valley and became big business. This meant competition, but the market was broad and constantly expanding. There was room for all to gain success. Year by year the ranchers developed and improved their plants and planting methods and, under the guidance of the Agricultural Extension Service agents, found broader markets.

What the well-dressed ranch hand in Moapa Valley wears in the way of shirts. Quite picturesque and looks cool.

Within a few years the Moapa Valley region has gained a high reputation for quality plants, variety of products, dependability, and economy of distribution. At present between 200 and 300 ranchers on farms ranging from 20 to 200 acres in size are engaged in this highly specialized work, devoting part of their lands to this culture.

Although not more than 300 acres are set to cultivation of tomato plants each year in the Moapa Valley yet the plants harvested from these acres are enough to transplant from 11,000 to 12,000 acres in their continued growth to maturity and bearing. Planting of the seeds occurs in mid-March when there is little danger of frost. Harvesting of the plants begins in early May. Today from this small valley, with Logandale and Overton as the marketing and shipping centers, tomato plants are sent to almost every part of the Nation.

Garden truck growers from New York to California have recognized the quality of the plants and are willing and eager to pay premium prices for the product. It was not a question of successful cultivation, but resolved itself into a problem of successful marketing and distribution. To bring about the desired results of quick delivery of a highly perishable product, in fine condition at destination, refrigerator cars have been used for hauling most of these plants to their distant markets. During the past few years when rush orders have poured in from far-away places, with great risk of shipment by ordinary methods, ranchers resorted to the use of airplanes for fast and assured delivery. Many a crate of plants will go out this season from Moapa classified as "freight by air."

Raising celery plants for transshipment and transplanting is relatively a new phase of this irrigated specialty farming. However, its success also seems assured.

The first crop on the original five-acre tract proved successful, and following original procedures, acreages have been increased during the five years until last season 60 acres were planted to celery seed alone.

All plants are graded carefully to insure that each individual stalk is vigorous and uniform in size. Plants are shipped to truck farmers in Utah, California, and other western States. In five years this specialty has developed into a thriving industry and the future holds much promise.

From a total of approximately 5,000 acres which are under cultivation in Moapa Valley, at the present time, more than 70,000,000 tomato plants and 20,000,000 celery plants are harvested. Besides this, considerable crop yields of onions, radishes, carrots, and spinach are sent to early season markets, and revenues from this phase of specialized farming helps maintain a prosperous community. During the past few years a number of the ranchers have assigned some of their acreage to the growing of cantaloupes. In a normal year this cantaloupe crop will yield as much as 150 carloads, with about 300 crates to a carload, during a three to four week shipping season.

Preparation of the soil for this industry is done with modern equipment, most of the ranchers using their own tractor units for plowing and harrowing and later cultivation. When the plants are ready for harvesting they are hand-picked and carefully packed for shipment. Plants are trucked from the field to the packing sheds where they are crated and then loaded in refrigerator cars for shipment.

Rail shipments are facilitated through a branch line, which serves the entire valley. This branch line connects with the

A few exposed trunks of petrified trees found in the Valley of Fire. Evidence indicates others beneath the overburden of soil.

Old Monkey Face is a mass of red standstone sculptured to that likeness by the wind-blown sand.

General view of the silica sand beds near Overton, Nevada. Finest of glassware comes from this material, which equals the Belgian sands in quality.

Union Pacific's Salt Lake-Los Angeles main line at Moapa, a village located ten miles north of Overton. Through the harvest seasons cars are spotted and picked up two and three times daily and speeded on their way to destination on express car classification. A regular-sized car will hold approximately 500,000 plants. At their destination, in already prepared fields, these tender stalks will be transplanted and nursed along to maturity. In the late summer and early fall luscious tomatoes and crispy celery will grace the dinner table in many parts of the Nation as a result of an industry developed in this small but highly important Nevada community.

Projects are under consideration for expanding the industry to parts of three other valleys in that section of the State. These valleys are known as the Virgin Valley, several miles to the northeast of Logandale; the much larger valley in which the city of Las Vegas is situated; and also the delightful, but moderate-sized Pahrump Valley, in Clark County, along the California border line. Successful beginnings have already been made in the Pahrump Valley, and results have encouraged the ranchers there to increase their efforts. Artesian wells of large capacity recently have been developed in Pahrump Valley and these large volumes of water will be diverted to irrigating the land for plant-culture purposes.

Raising of alfalfa as a part of the dairying industry in the Moapa Valley at the present time varies the ranchers crops and supplies forage for the dairy cattle. With the first cutting of alfalfa coming in April, the valley usually counts on five crops per season. Holstein and Jerseys are selected for the dairying stock, and present production from the herds is sent to the Las Vegas markets. Later it is planned to install butterfat processing plants at either Overton or Logandale.

When Hoover Dam was completed, a little over ten years ago, it blocked the waters of the Colorado River and impounded an immense pool of quiet waters behind it. This quiet water now extends back up the river for 115 miles almost to the lower end of the grand Canyon of the Colorado, in the State of Arizona. In some of the tributary canyons, down which small streams flow and empty into the Colorado, waters from Lake Mead have backed up and created long, narrow pools, extending for many miles into the southern Nevada country.

One of these newly created waterways reaches up the Virgin River Wash. Backwaters of the Colorado have covered thousands of acres of desert land in that watershed. In one place it has completely submerged the small town of Saint Thomas which, in its day, had about 100 inhabitants. In summer volume the river runs deep enough at old Saint Thomas to completely hide the former settlement and no trace of its existence can be seen. In the late fall and winter months when the Colorado has passed its crest, the level above Hoover Dam lowers. The waters in the tributaries also recede. Then the ghost of Saint Thomas begins to stir and get restless. If the waters go low enough tops of some of the buildings in old Saint Thomas poke their roofs up high enough so that they can be seen above the water level. Saint Thomas, Nevada, however, remains only in history as the small community which gave up its earthly existence to make way for modern progress.

In that same general vicinity explorations, a number of years ago, revealed the existence of many dwelling places of a prehistoric tribe of Indians. Apparently they made their abode in that region. While no record of these early settlers is available, many relics and artifacts have been recovered and preserved in the Museum at Overton. All of the trinkets, utensils, and other objects of a prehistoric nature taken from these ruins have been placed in the Overton museum for public display. When the Colorado River reached its predicted level the prehistoric Lost City was submerged and is now lost to the world forever.

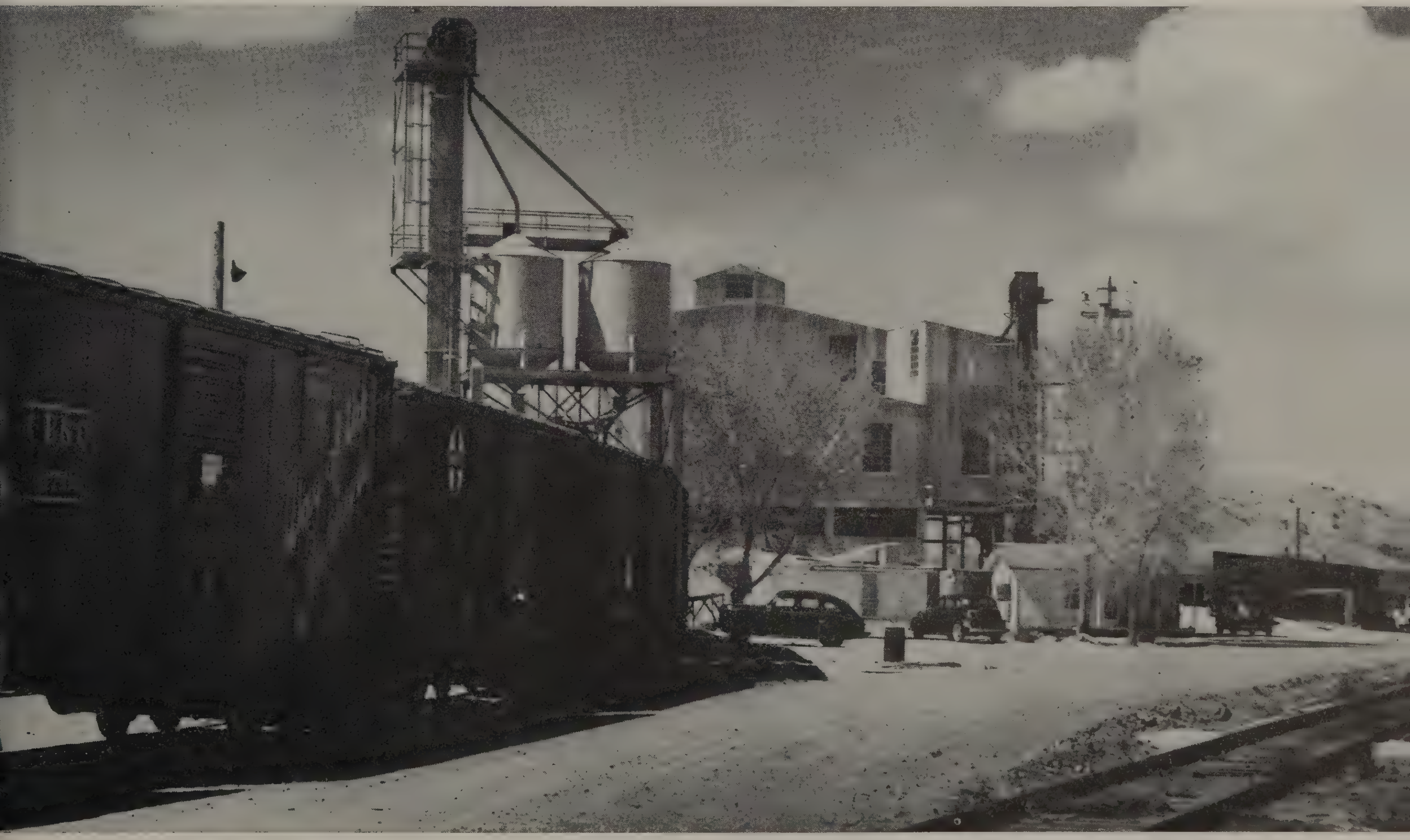
Another consequence of the backing up of Colorado River waters into desert land is that a new and wonderful fishing area has been created in this southwestern country. These fishing waters are now accessible to the public for recreational use. Before the dam had backed up the river there was little fishing because of the swift and treacherous current, and also because the waters were muddy practically the whole year through. Things have been changed now. Quiet water extends for many miles up the river and the fishing is exceptionally good. Overton, a town of probably 1,500 inhabitants, in the Moapa Valley, has benefited from this changed condition. During the past few years Overton has assumed the dual role of farming center and fishing village. Overton has been recognized by sportsmen all over the southwest as a gateway to some of the finest bass fishing waters found anywhere in the Nation. The finny tribe are especially plentiful in an arm of Lake Mead because the Virgin River empties its waters into the lake at this point, supplying the fish with additional food.

Now the residents of Moapa Valley are selling tackle and bait to visitors who converge at Overton Beach for their fishing trips. Seldom does a fisherman come back empty handed, and there have been many record catches of Lake Mead bass. Farming terms mingle with angling lingo in the town's stores, and on the streets, and the area is becoming tourist conscious. Groups of leaders of the community have erected signs and printed pamphlets extolling the merits of their new industry—Lake Mead fishing.

Boats usually take off from Virgin Valley Wash, an arm of Lake Mead, about 7 miles from Overton. A fine paved highway leads right down to the fishing docks and there is ample parking space for hundreds of cars. Boats, both power driven and hand propelled, can be rented at the docks.

Fishing in the lake is exceptionally good and catches of 4, 5, and 6 pounders are commonplace. Sometimes the bigger ones get away. Big mouth bass, blue gills, crappie, and catfish are the kind generally snagged. Some takes of nine and twelve pounds have been registered in the last year or two. Many stores in Overton are now equipped to handle all demands of the fisherman in the way of tackle, bait, or boats.

Vividly colorful Valley of Fire located a few miles southwest from Moapa Valley is a great scenic attraction in this section of the State. This valley, approximately five miles long and perhaps three miles wide, displays huge masses of strikingly red sandstone in all shapes and sizes. Some isolated piles have their base on the valley floor and appear as though they were pushing up through the floor itself. Rugged walls are fluted by small ravines or canyons; other walls present smooth, perpendicular faces, with black-stained splotches. These rocks are believed to be some of the oldest rocks in the State, geologically speaking. Many interesting and uniquely shaped formations are to be recognized in many parts of the Valley of Fire. More notable ones, and easily detected, are the Bee Hive, the Elephants Head, the Monkey Face, the Atlatl Rock, the Turtle Rock, and others. These formations have been sculptured



Screening and washing plant of the Glass Container Company, where several hundred tons of silica sand are processed daily.

The sand pit, after 20 years operation, with enough glass sand to last for a century or two at present rate of production.

by weather, wind, and sand during these myriads of ages. It is most interesting to study the delicate carvings at close hand. Color effects, on the whole, in the valley are gorgeous. The tone changes with the changing position of the sun. At noon the light is intense and glaring; colors are sharp but harsh. In the early morning or late afternoon these tone changes produce very delicate and striking color effects.

One strange occurrence found on some of the red rock walls has puzzled archaeologists for many years. Rock writing, or petroglyphs, by the thousands were placed on some of the cliff faces, at some dim distant time, by tribes of human beings in a prehistoric age. Little is known of these tribes or why they put these messages on the red walls. Some students of ancient history believe this valley, at one time, was the rendezvous of many tribes. They probably assembled here for their tribal councils, or to settle weighty problems confronting these people in their own time, and left these characters on the walls for all to see and to make a lasting record. Or, at least that is what is suspected. Thousands of these peculiar looking signs are chiseled in the sandstone face, and etched deep. Crude drawings of animals suggest deer, dogs, goats, and rabbits; also snakes. Lines which may indicate direction, or perhaps a stream, are to be plainly seen, while other characters are circular in shape with radiating lines. This may represent the sun, but no one has ever definitely determined the accuracy of such meanings.

At one place, known as Atlatl Rock, the entire face of the wall is covered with incised markings. Atlatl Rock is a type of balanced, or pedestal rock. The base has been worn thin by the abrading affect of the whipping sands, and has left a big, bulky upper part broader than the base. The rock is entirely separate from the closely adjoining rock mass. The pedestal upon which Atlatl Rock rests is growing smaller each year, although the change seems minute. Some day, probably, it will topple over into the valley. The floor of the valley at this point is 50 feet below the base of Atlatl Rock.

A good dirt road makes contact with most of the better-known places in the valley. Trails lead back into the more isolated regions. Because of the color possibilities in the Valley of Fire, several motion picture companies of Hollywood are interested in using the locale for technicolor pictures.

An industry of much importance to the State of Nevada also has its nucleus in the Moapa Valley. Huge deposits of silica sand, or glass sand, have been found a few miles from Overton, and these deposits are being developed by the Glass Container Company, a concern with California headquarters. These sands are snow white in color, and are of the finest quality for manufacturing glass containers of all kinds. They are considered as equal to the Belgian sands which are considered the best for fine glassware manufacture. At the present rate of production there is enough material in these sand deposits to keep the glass factories working for a century or more, according to the officials of the company.

Drill holes into the deposit have gone down 150 feet and the cores from these tests show high grade sand all the way down, with no bottom in sight. The deposit spreads over many acres of ground. This particular deposit has been mined since 1926, and each year the tonnage excavated and removed increases. Several hundred tons of the material are mined each day and put through the crushing plant which is located at the pit. From the crushing plant the material is trucked to the screening and washing plant, located at the outskirts of Overton, the railhead. The washed sands are then sent to the manufacturing plants in California.

Virginia City, Great Mining Camp

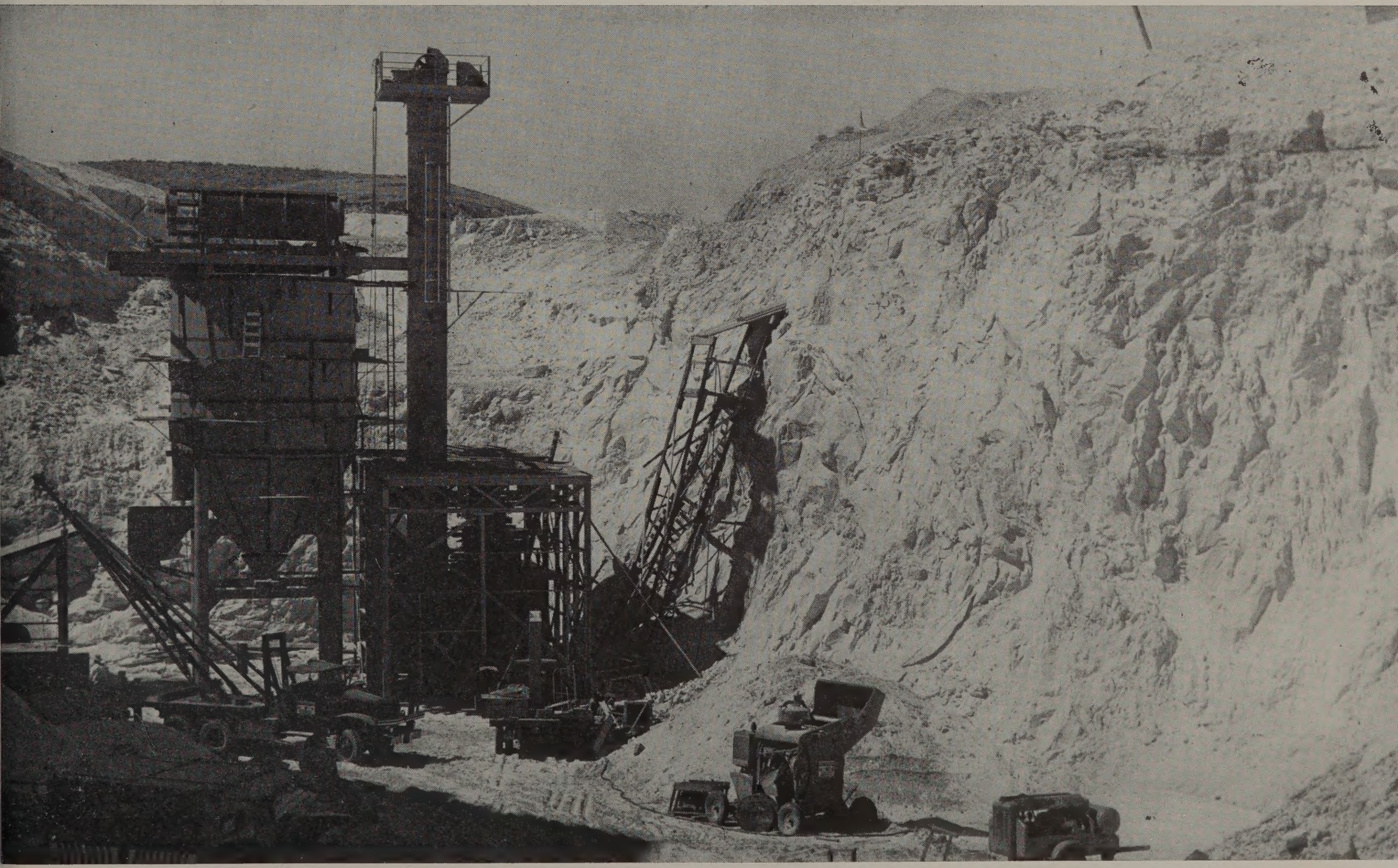
(Continued from page 15)

was completed in 1876, and its service consisted of all the modern conveniences of that day, including baths in rooms, electric annunciators, gas lights, and elevator service. This building was destroyed in 1914 and never rebuilt.

The Storey County Court House and the City Hall were finished in the year 1876. Piper's was rebuilt and opened in 1878. St. Mary's Hospital became a reality in 1876.

All of the foregoing events, while in history's past pages, are still alive and fresh in the memory of those who are holding the fort at Virginia City, and provide an incentive for hope that the camp still has many more prosperous days ahead. Virginia City always did come back, after a tumble, they say. Why shouldn't she do it again?

Obviously many of the large existing ore bodies along the lode have been extracted and values recovered. These deposits are no more. They cannot be replaced or substituted. They are gone forever. New ore bodies must be found—ore bodies which have escaped detection through all of these decades. It takes much money to find them, but there are those with a thorough conviction that not all the ore bodies have been found and depleted, but that there are more "plums in the plum pudding" as John W. Mackay so aptly described the Comstock many years ago.



Crushing plant situated at the south end of the pit. Fine grained, snow white, it is the purest glass sand found anywhere.

Practically all of the mills which processed the enormous tonnages of ore brought to the surface have disappeared. Only parts of their foundations now remain to mark the sites. Here and there one sees the fallen, and partly decayed, timbers of an old shaft headframe which probably creaked and groaned under heavy loads during the good old days.

Great heaps of waste rock—the mine dumps—have packed to a rocklike hardness and stretch for hundreds of yards in all directions east and north of the town. Millions of tons are contained in these piles, some having gold and silver recovery possibilities, when new and more perfect recovery processes are found. Most conspicuous of these dumps are at the Union Mine at the north end of town, then the Utah, Sierra Nevada, Con. Virginia, Gould and Curry, Hale and Norcross, and Chollar-Potosi. Some of the dumps are believed to average from $2.50 to $3.00 per ton at present gold prices.

Something which the old timers had not ventured to undertake is now a landmark around Virginia City in what is known as the "Glory hole." There are several of them. These are huge, gaping surface excavations 150 to 200 feet deep and many hundreds of feet in diameter, cut right into the flank of the mountain. Large amounts of low-value silver and gold ore exist near the surface in the vicinity of some of the old and famous producing mines. With the advent of the power shovel, more economical methods of mining were made possible, and at several places shovel operations were tried out, with moderate success at first. However, the holes got so big that raising the ore to the road surface became a problem which defied even a mechanical solution. Caving of waste material into the hole also added to the difficulties. As a result "glory holeing" as it was called eventually ceased altogether.

Power shovels were also used at Cedar Hill in "bench mining" to recover ores economically and revive dividends in the old Comstock camp. This, however, did not prove satisfactory.

Two of these immense glory holes are conspicuous in Virginia City at this time. One is at the Central Comstock Mines Corporation lease across the road from the old Fourth Ward school at the south end of the city, and the other is just west of B Street at the north end of town, and is a part of the present Con. Virginia properties.

The diamond drill is one hope for Virginia City, if a revival is to come. Some drill work already has been done, but no sensational discoveries have been reported. The future may have a different story to tell if the diamond drill is used in ground which has never been worked before. There are possibilities the drill may find another "plum."

This possibility keeps Virginia City on its toes, and hopeful. Until that new discovery is made, however, Virginia City will adjust itself to the task of receiving and cordially entertaining visitors and tourists who appreciate the historic value of the old camp. These visitors are coming to the Comstock Lode in ever greater numbers each year, and 1948 will be no exception.

PHOTOGRAPHIC CREDITS

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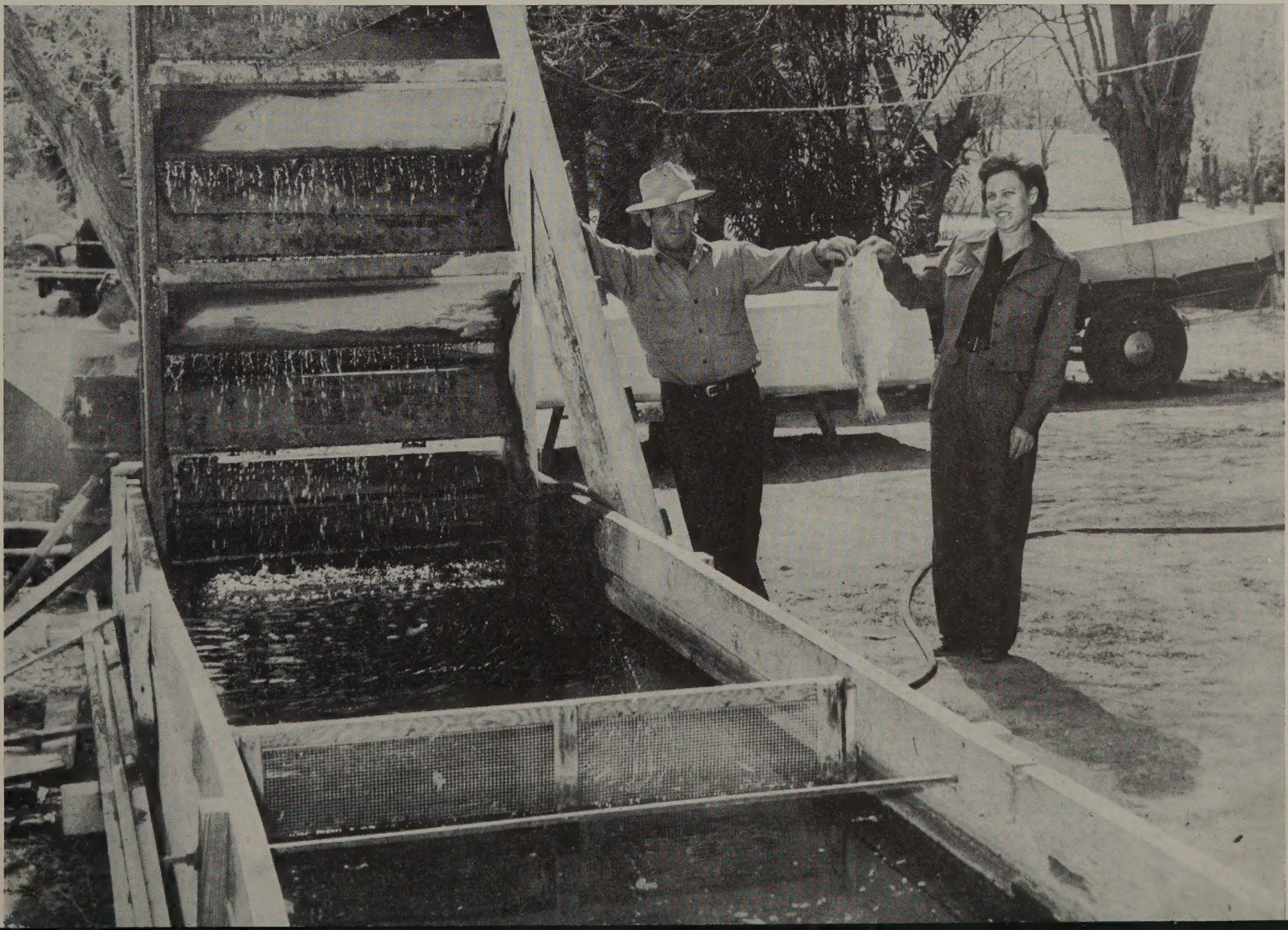
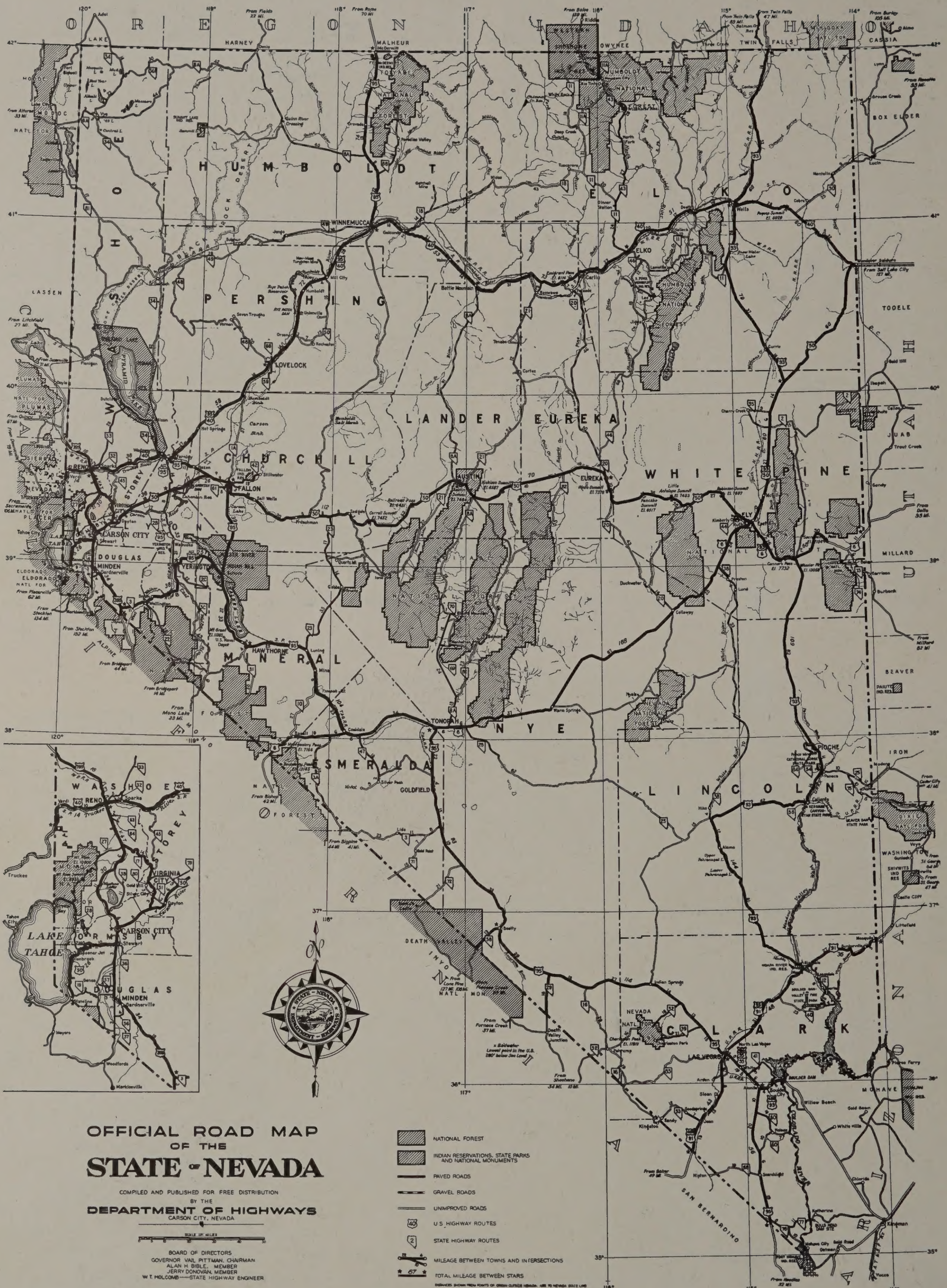
"Bait Supply" a sign strangely new to south Nevada folks. Reason: Good fishing on Lake Mead, nearby.

"See what I caught! It's quite easy in Lake Mead," she says.

"I got 'em over there." Now you take a boat and find the spot.

Home-built water "aerator" for fish culture plus a nine pounder which Mrs. Payne snagged in Lake Mead.





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